IoT Monitoring of Water Consumption for Irrigation Systems Using SEMMA Methodology

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Abstract

The efficient use of water is an issue that has captured the attention of scientists, technicians, and the community at large. The sustainability of water resources has been threatened by the current imbalance between water supply and demand. Intelligent consumption of water would contribute to the balance and reduce the waste in applications such as the agriculture. This paper shows the design of a water consumption monitoring system based on the Internet of Things (IoT). With the implementation of this system could be known in real time the consumption of water in a crop. In addition, the user of the system may take corrective actions that optimize their water consumption; this is achieved by applying the SEMMA methodology to evaluate the data obtained by the system using two cluster algorithms, Simple K-means and GenClus++. With the application of SEMMA it was possible to determine periods of water consumption that were considered as waste in the irrigation of crops, applying data analysis with both algorithms.

Keywords

Internet of Things (IoT), Irrigation system, Sample Explore Modify Model and Assess (SEMMA), Water consumption